

CLAIM AMENDMENTS

1. (Original) A tunable chromatic optical signal dispersion compensator comprising

three cascaded Mach-Zehnder interferometers, MZIs, a first MZI including a fixed  
5 50/50 coupler for receiving an input optical signal, a second MZI including a first  
adjustable coupler that is shared with the first MZI and a second adjustable coupler that  
is shared a third MZI, and the third MZI including a fixed 50/50 coupler for outputting  
a dispersion-adjusted output optical signal and
- 10 wherein said first and second shared adjustable couplers are adjusted with equal  
coupling ratios using a single control signal to provide adjustable dispersion  
compensation to the output signal.

  

2. (Presently Amended) A tunable chromatic optical signal dispersion  
compensator comprising

three cascaded Mach-Zehnder interferometers, MZIs, a first MZI including a fixed  
5 50/50 coupler for receiving an input optical signal, a second MZI including a first  
adjustable coupler that is shared with the first MZI and a second adjustable coupler that  
is shared a third MZI, and the third MZI including a fixed 50/50 coupler for outputting  
a dispersion-adjusted output optical signal,
- 10 wherein said first and second shared adjustable couplers are adjusted with equal  
coupling ratios using a single control signal to provide adjustable dispersion  
compensation to the output signal, and

~~The optical signal dispersion compensator of claim 1 wherein the first and third MZIs~~

15 have a path-length difference  $\Delta L$  and the second MZI has a path-length difference  $2\Delta L$ .

3. (Original) The optical signal dispersion compensator of claim 1 wherein when the two adjustable couplers are set to a 100/0 coupling ratio, the optical signal dispersion compensator has zero dispersion and wherein the dispersion can be tuned positive or negative by adjusting the two adjustable couplers towards a 50/50 coupling ratio.

4. (Original) The optical signal dispersion compensator of claim 1 wherein each of the two adjustable couplers is implemented using an MZI with phase shifters.

5. (Original) The optical signal dispersion compensator of claim 4 wherein the phase shifters of each of the two adjustable couplers uses thermooptic heaters operated in a push-pull manner by the single control signal.

6. (Original) The optical signal dispersion compensator of claim 1 implemented as a planar optical integrated circuit or using discrete optical elements.

7. (Original) The optical signal dispersion compensator of claim 1 being integrated as part of an optical apparatus consisting of one or more of the following optical components

- an optical transmitter,
- an optical amplifier,
- an optical filter,
- a wavelength multiplexer,
- a wavelength demultiplexer,
- and an optical receiver.

8. (Original) The optical signal dispersion compensator of claim 1 being used in a multi-wavelength channel system, the optical signal dispersion compensator having a free-spectral range equal to the system channel spacing divided by an integer.

9. (Original) A reflective tunable chromatic optical signal dispersion compensator comprising

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a first MZI including a fixed 50/50 coupler for receiving an input optical signal at a first port and an adjustable coupler, that is shared with a second reflective MZI, the path-length difference between the two arms in the second MZI is equal to that of the first MZI and

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wherein the adjustable coupler is responsive to a control signal for controlling the amount of signal dispersion added by said compensator to the input optical signal to form the output optical signal.

10. Canceled